## What is claimed is:

- 1. In apparatus, in the dissipation of heat through a surface area of a component of said
- 2 apparatus, the improvement comprising:
- a first transfer of said heat radiating from said surface area of said component to a liquid
- 4 medium comprising liquid passageways in a component in contact with said surface
- 5 area, and,
- a subsequent transfer of said heat in said liquid medium to a gaseous medium.
- The improvement of claim 1 wherein said a subsequent transfer of said heat in said
- 2 liquid medium to a gaseous medium includes said gaseous medium conveying said
- 3 transferred heat and radiated heat from said apparatus to an ambient outside said
- 4 apparatus.
- 1 3. The improvement of claim 1 wherein said component in contact with said surface
- area has at least one serpentine shaped passageway.
- 4. The improvement of claim 3 wherein said serpentine passageway is a plurality of
- 2 said passageways resulting from top and bottom plates each with a protruding
- 3 interdigitating pathway configurations.
- 5. The improvement of claim 2 wherein said component in contact with said surface
- 2 area has at least one serpentine shaped passageway.
- 6. The improvement of claim 4 wherein said serpentine passageway is a plurality of

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apparatus.

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2	said passageways resulting from top and bottom plates each with a protruding
3	interdigitating pathway configurations.
1	7. The improvement of claim 4 where said component includes an embedded pump at a
2	site connected to said at least one serpentine pathway.
1	8. The improvement of claim 6 where said component includes an embedded pump at
2	site joining four serpentine pathways at a pump site.
1	9. In the dissipation of heat through a surface area of an integrated circuit
2	in electronic apparatus,
3	the improvement comprising:
4	a transfer component for transfer of said heat radiating from said surface area of said
5	integrated circuit to a liquid medium
6	said transfer component including a member in contact with said surface
7	having passageways for a liquid medium.
1	10. The improvement of claim 9 including a heat exchanger adapted to transfer said heat
2	through a gaseous medium to an ambient of said electronic apparatus.
1	11 The improvement of claim 10 wherein said transfer of said heat in said
2	liquid medium to a gaseous medium includes said gaseous medium conveying said

transferred heat and radiated heat from said apparatus to an ambient outside said

1	11 12. In the dissipation of heat through radiating surface areas of integrated circuits
2	in electronic apparatus,
3	the improvement comprising :
4	a transfer component for transfer of heat radiating from the radiating surface area of said
5	integrated circuits to a liquid medium,
6	said transfer component having first and second essentially parallel sides with
7	the radiating surface area of each integrated circuit of an array in contact with
8	one of said sides,
9	said transfer component including a heat exchanger adapted to transfer said heat
10	through a gaseous medium to an ambient of said electronic apparatus.
1	13 The improvement of claim 12 wherein said transfer of said heat in said
2	liquid medium to a gaseous medium includes said gaseous medium conveying said
3	transferred heat and radiated heat from said apparatus to an ambient outside said
4	apparatus.
1	14. The process of transfer of heat from an area of densely positioned sources radiating
2	through a planar surface of an element of an electronic apparatus,
3	comprising the steps of:
4	providing a radiation to liquid heat transfer component positioned in contact with said
5	area on said surface, and,
6	providing a heat exchange mechanism operable to transfer heat in the liquid in said

- 7 transfer component to a gas.
- 1 15, The process of claim 14 including the step of passing said gas over radiating
- portions of said apparatus in exhausting said gas to an ambient outside said apparatus.
- 1 16. The process of claim 14 including in said providing, a radiation to liquid,
- 2 heat transfer component, positioned in contact with said area on said surface, step,
- 3 the further providing of multiple serpentine liquid passageways in said component.